Tanmay Gulati

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Education

New York University - Courant Institute of Mathematical Sciences **Sep'21 – May'23**
Master of Science in Computer Science *New York, NY*

Manipal Institute of Technology **Aug'16 – Jun'20**
B.Tech in Computer Science and Engineering (minor: Intelligent Systems) *Manipal, India*

Technical Skills

Programming Languages: Python, C, C++, Java
Others: PyTorch, Tensorflow, Scikit-learn, Git, Flask, FastAPI

Experience

Novartis **Aug '20 – Aug '21**
Associate Full Stack Engineer *Hyderabad, India*

- Developed a POC of self-supervised learning applied to medical images using custom transformations and improved fine-tuning accuracy by 3.3%.
- Created and productionized a service out of MRC Question Answer module and Text Summarisation module using FastAPI/Flask.
- AI-Based-Scientific-Writer: Productionized(PEP-8) and optimized a module which extracted information from Clinical Study Report documents, recommended appropriate data to the user and created custom word documents containing selected information. User efficiency increased by 30%.

Novartis **Jan'20 – Aug'20**
Software Engineering Intern *Hyderabad, India*

- Improved performance/accuracy of medical term extraction module in the semantic comparison of two repo's containing drug info using BioBERT, MetaMap2020, SciSpacy and AWS Medical Comprehend
- Single-handedly productionized the entire POC code (PEP-8).

University of Waterloo **May '19 – Aug '19**
Research Intern, Advisor: Dr. Vasudevan Lakshminaryanan *Waterloo, Canada*

- Published conference papers on 'Super Resolution using Deep Learning on Retinal Fundus Images' and a survey paper on applications of deep learning of retinal fundus images for use in ophthalmic diagnosis.

i2e1 : Information To Everyone **May'18 – Jun'18**
Data Analyst Intern *New Delhi, India*

- Created features using SQL on Google BigQuery for a ML Response Model equipped to predict whether a customer is likely to encash a promo code based on multiple features such as the frequency of their visits to a particular area, their (customer) spending capacity, etc

Publications

1) **Gulati T**, Sengupta S, Lakshminarayanan V. *Application of an enhanced deep super-resolution network in retinal image analysis.* In Ophthalmic technologies XXX 2020 Feb 19 (Vol. 11218, p. 112181K). International Society for Optics and Photonics. [Proceedings Paper]
2) Sengupta, S., Singh, A., Leopold, H. A., **Gulati, T.**, Lakshminarayanan, V. (2020). *Ophthalmic diagnosis using deep learning with fundus images–A critical review.* Artificial Intelligence in Medicine, 102, 101758. [Journal Paper]
3) Sengupta, S, Athwale A., **Gulati, T.**, Zelek, J., and Lakshminarayanan V,. *"FunSyn-Net: enhanced residual variational auto-encoder and image-to-image translation network for Fundus Image Synthesis."* In Medical Imaging 2020: Image Processing, vol. 11313, p. 113132M. International Society for Optics and Photonics, 2020. [Proceedings Paper]

Applied Patent

Applicant Names: J. Prince**,** R. V. Krishnananda Prabhu**, G. Tanmay,** L. Yogesh**,** S. Bikramjeet
Title: System and Method for Locating and Enabling Retrieval of Containers from a Tray
Application Number : 201941027085 (Indian Patent Office) [Documents]

Projects

- *Automation for Managing Country Labels(Python):* Check for inconsistencies of drug info between repositories. (link)
- *Semi-Rapid Sample Archival System(Python, Raspberry-Pi):*Cost-efficient prototype, extract barcodes on vaccutainers and archive them. (link)
- *Disaster Prediction and Management for the Microsoft CodeFunDo++(Python)* (code) (demo)
- *Parallel Implementation of Edge Detection Algorithms(C, CUDA):* Based on adaptive estimation filters. (code)
- *Java Compiler(C, Flex, Bison):* Generates tokens using flex, parses them according to the official Oracle Grammar. (code)